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"Spikes" of ^{10}Be in 700 Ky old ice from EPICA Dome C climatic or cosmic ?

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We have measured a nearly continuous high resolution (11 cm) profile of ^{10}Be in the EPICA Dome C ice core, from 3100-3190 m. More than a dozen "spikes" of ^{10}Be, having durations of $<$100 years and amplitudes of up to an order of magnitude above adjacent samples have been observed. One possibility is that these spikes are due to unusual climatic conditions. If so, we would expect similar enhancements in other atmospherically deposited species, and perhaps some indication in the stable isotope values. To date, we have not been able to find any such correlations. Thus, if these spikes are of climatic origin, the mechanism must be rather specific to ^{10}Be. The second possibility is that these spikes are due to production variations. Based on our present understanding, neither solar or geomagnetic modulation can give rise to enhancements of the observed magnitude. Other possible origins include enormous solar flares, rapid variations in the primary cosmic ray flux, greatly increased flux of interplanetary dust. We will discuss each of these possibilities.